

# **OBJECTIVES**

- Learn about combat-related Traumatic Brain Injury (TBI)
- Explore how TBI impacts behavioral, physical, and cognitive health
- Discuss co-occurring diagnosis
- Look at the correlation between combat-related TBI and substance abuse  $% \left[ {{\left[ {{{\rm{TBI}}} \right]}_{\rm{TBI}}} \right]_{\rm{TBI}}} \right]$
- Examine factors which intercede with symptom recovery such as sleeplessness, chronic pain, PTSD, and anger management
- Learn about ambiguous loss and caregiver grief

# **TBI** Topics

- Basic competency
- Anxiety & Depression
- Substance abuse, misuse, and dependence
- PTSD or PTS
- Sleep
- Chronic Pain
- Grief

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About Me
Social worker for almost 20 years
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The Brain Injury Association of America (2011) defines Traumatic Brain Injury, TBI as an alteration in brain function, or other evidence of brain pathology cause by external force.

They also define an Acquired Brain Injury, ABI, as an injury to the brain, which is not hereditary, congenital, degenerative or induced by birth trauma. An acquired brain injury is an injury to the brain that has occurred after birth.

Each year in the U.S. an estimated 1.7 million people sustain a TBI

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# Why Is TBI Still So Unknown

Due to improved emergency response systems (i.e. cell phones to call 911), faster transportation to trauma centers, and improved safety (i.e. seatbelts, helmets, and airbags), people are surviving brain injuries now more than ever

Most people don't know a lot about brain injuries, especially how it effects people

A concussion IS a brain injury

The majority of concussions do not involve loss of consciousness

Multiple concussions back-to-back or over time can result in changes that are lifelong

## What Happens

When a TBI happens there is a primary event and a secondary event

The primary event is the initial injury

The secondary event is the body's response and reaction to the primary event

For example, if someone falls and hits their head, the impact and tearing of brain tissue is the primary event, and the brain's reaction, such as swelling that could cause more pressure on the brain, is the secondary event

It is important to note that damage from the secondary event can actually be more severe than damage from the primary event

## Diagnosis

TBI is typically classified as "mild", "moderate", or "severe"

This diagnosis is made based upon the person's immediate post-injury condition (i.e. length of consciousness or amnesia)

Classification of diagnosis is representative of the severity at the time of the incident

A "mild", "moderate" or "severe" TBI diagnosis does NOT determine long-term recovery or outcomes

One may start to think about two different classifications of TBI, one for the injury and another for recovery or outcomes

### Causes

Military related TBI can happen on deployment or off deployment at many times including training.

Here are some examples of TBI events:

- Close proximity to a blast or explosion
- Fragment wound or bullet wound above the shoulders
- Blow to the head
- Vehicle accident or crash
- Fall in training
- Vehicle flipping over
- High speed boat travel or crashing on waves
- High speed flight travel
- Blow back from high volumed of ballistics
- ....and more

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## **Different TBIs**

No 2 brain injuries are exactly alike

Remember there are 2 parts to TBI – the actual injury + the brain and body's reaction

One way to think about this is even if 2 people had the same injury, resulting from the same reason, at the same place in their brain...their bodies would react differently.

Consequently, their TBIs would be different as well as their symptoms and road to recovery

Accurate self-reporting to a provider whenever possible, combined with an individualized assessment and treatment plan, helps pave the best road to recovery

# Common Symptoms

Some common symptoms after a TBI or TBI reactions that occur on the left side of the brain are:

- Difficulties understanding language
- Difficulties in producing language
- Depression, Anxiety, PTSD, OCD
- Verbal memory deficits
- Decreased control over functions in the right side of the body
- Impaired logic
- Trouble with sequencing





# Common Symptoms (cont.)

Additional common TBI symptoms:

- Reduced thinking speed
- Increased confusion
- Reduced attention and concentration
- Increased fatigue
- Impaired cognitive functions across all areas
- Irritability

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# Consequences of TBI

There are 3 main areas where people commonly see impacts of TBI. These are:

- 1. Physical
- 2. Cognitive
- 3. Behavioral

Unfortunately, often cognitive and/or behavioral changes can easily be overlooked after the physical injuries have healed.

Sometimes people may be less aware of cognitive changes more than their physical limitations from an injury

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### Some common physical changes caused by TBI include: - Impairment of body movement- Weakness on one or both sides of the body - Speech and swallowing Fatigue or reduced endurance problems - Pain as a result of TBI Headaches - Sensory difficulties Neck Pain - Fatigue and sleep disturbances Double vision, loss of visual fields, or issues with depth - Spasticity and tremors perception Seizures Sensitivity to light and noise Poor balance Decreased sense or taste and Reduced motor coordination smell

# Cognitive Changes

- Gets "stuck" on one view

- Difficulty understanding theoretical  $\ task$ 

concepts

- Concrete thinking style

- Difficulty understanding double meanings, sarcasm, humor
- Decreased ability to store/retrieve
- new information - Forgets details easily
- Woul for diam difficulti
- Word finding difficultiesDisorganized communication
- Rambling off topic
- Difficulty talking to more than one person at the same time
- Easily distractible

- Cannot sustain attention to new task

Cannot pay attention to two things at once Difficulty filtering out irrelevant information or activity Decreased flexibility Difficulty understanding cause & effect

Difficulty prioritizing and organizing tasks

Difficulty with problem solving Sits on couch/in front of TV all day



# Reminder

It is important to shift your thinking

These changes are NOT reactions to TBI

They are symptoms OF TBI

If they could change them or stop having them without interventions, copings skills, or treatment – They would have done that already!

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# Other Causes

There are other related things which occur as a result of TBI that may cause these symptoms. A person may experience some of these changes not directly because of TBI, but for other reasons such as one or more of the following:

- Medication side effects
- Relationship issues
- Disappointment related to losses
- Sleep irregularity
- Sexual history
- Addictions
- Seizure activity
- Pain
- Other mental health issues
- Isolation
- Moral injury
- Grief/loss





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# Important Consideration

Although the physical injury could potentially be the same, PTSD caused by TBI may look different for veterans considering added other factors (such as moral injury) also being involved.

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## Why Can't I Remember?

"The same mechanism that kept his brain sharp enough to escape immediate danger may also make it harder for both to recall the accident and put the trauma behind them." (Newer, 2013)

Sometimes during an accident high levels of adrenaline pump quickly to the brain helping the person react and giving them extra strength to take action to stay safe

At the same time, this excessive rush of adrenaline (noradrenaline) destroys the brain's ability to store memories

The brain focuses on just what the person needs to survive

Not being able to remember what happened is not a moral failure, it's common and caused by science

## Findings

Through the studies it was determined that when CBT (talk therapy) is focused only on story telling, social skills, anger management, etc. it can be effective in building coping skills, but not necessarily reducing anxiety and depression.

However, CBT(talk therapy) that focuses on anxiety, depression, and TBI specifically was proven to have much better results.

Treatment outside of the home was proven to be more successful than treatment in the home.

Veterans did not have to tell or continue to re-tell their "story" to get better. (Although having a solid narrative to share when appropriate was helpful.)

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# **Taking Action**

Fend off things like negative self-talk, self-criticism, thinking the worst is going to happen, etc.

These thoughts are not helpful. They are symptoms. They may always be there. Often taking energy to try to make them "go away" makes depression and anxiety worse.

These symptoms typically take up A LOT of people's daily energy and make it harder to do other things.

When they encounter these thoughts say "no" to them, tell them to "take a hike", detach from believing this is what they really feel or think - They are symptoms. Saying "no" or "that's not really how I feel about myself," is learning to live with them

Practicing things like staying present, gratitude lists, and redirecting thoughts will counter these symptoms and preserve energy.

# Physical Exercise

According to the Mayo Clinic and other research, physical exercise eases symptoms of depression and anxiety, and keeps symptoms arrested in the future.

Remember, for most people the realistic goal is to have symptoms of anxiety and depression arrested, not cured.

In alignment with the DSM-5 having zero symptoms will not be possible, all of the time. The objective is to minimize the impact depression and anxiety symptoms have on your life. (Focus on decreasing the IMPACT, not the symptoms, and the rest will follow)

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# Ways that Exercise Helps

\*Adapted from Mayo clinic

Releases endorphins, which makes you feel good. These are the natural chemicals in the brain that improve your well-being

Shifts focus away from negative thoughts and worrying

## Think of Exercise Differently

Not all exercise needs to be running on a track, or going to the gym

Think of ways to incorporate exercise into what you are doing already

- Take the stairs instead of an elevator
- Park in a spot further away from the door
- Walk a lap around your office or walk outside
- Stand up while reading your morning emails

- Walk to the kitchen every time you need to throw away garbage

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### Key Points

Some of the most important things to keep in mind are when trying to reduce cooccurring symptoms are:

- Set reasonable goals

Do the things you like to do and don't do the things you don't like to do
Modify!! Both physical and mental wellness exercises should ALWAYS be modified depending on how your feeling (this is a good thing. DO NOT feel bad about making modifications)

- View routines as short-term. Nobody is asking you to make a commitment to do this forever.

- Physical and mental exercises should NEVER be used for punishment. Do not jog around the neighborhood instead of walking because you overate on Thanksgiving. Do not force yourself to write a list of personal goals for the year because you spent a week on the couch watching movies. This will increase negative self-talk when we are trying to decrease it.

- Always think of options. If you don't feel like journaling today, complete your writing in your head. Then congratulate yourself for a job well done. Options are the key to success!

- Start over new each day!! This has been proven to help TBI survivors.

# **TBI & Substance Abuse Risk**

A literature review was conducted to review all data which revealed that people with TBI were at higher risk for substance abuse of both drugs and alcohol, including illicit substances.

Within the study, participants who had TBI & PTSD were at greatest risk for substance abuse, followed by those who had PTSD but not TBI, then those who had TBI but not PTSD, and individuals who had neither TBI or PTSD.

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# **TBI Factors**

TBI Symptoms that contribute to an increased risk for substance abuse include:

Mobility

Functional status
Contemplation of change
Difficulty with recognition of consequences
PTSD
Anxiety
Depression
Moral Injury

## Trauma

In addition to higher rates of PTSD than the civilian population, veterans also show much higher instances of trauma in childhood before entering the military.

60,598 responses to the 2010 Behavioral Risk Factor Surveillance System showed that both men and women who entered the military reported far more ACEs (Adverse Childhood Experiences) of trauma than civilians.

Therefore, childhood trauma exposure is very high for veterans from even before they entered the military.

Recent data on OEF/OIF veterans show that a diagnosis if PTSD (whether from the military or not) increases a veteran's possibility of being diagnosed with a Substance Use Disorder by 3 to 4x the civilian population.



# Lack of Support

Another research study indicated that while veterans were being told of side effects for medications they were being prescribed, they were not being properly advised or supported in any type of medication management.

Although a tool for this has now been developed and is in the process of being implemented.

Pain management plans for TBI followed by little advisement or support on medication management in addition to history of trauma further puts veterans at high risk to develop Substance Use Disorders.

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# Coping

Struggles with addiction, substance abuse, and Substance Use Disorder consist of many forms of addiction and can also include gambling, sex, eating, playing video games, and more.

Research has classified substance abuse and misuse as maladaptive coping strategies following recent or longterm TBI as a response to psychological stressors, disability, and/or pain that follows the injury.

These maladaptive coping strategies should be viewed as not intentional, while at the same time recognizing their negative impacts on everyday life and relationships.





# **PTSD** Impact

Research concluded that veterans with PTSD and TBI may have both physical and mental health symptoms, however there was not a clear indication that their symptoms were more severe.

Rather the determining factors were post-deployment related conditions.

Also, the influence of dealing with 2 diagnosis, such as if you were recovering from a foot injury but also had a knee problem.

Although one was not necessary the determining factor in making the other worse or better, post-deployment assistance and readjustment treatment was.

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## Symptoms

Research showed that veterans with TBI and PTSD reported more functional and social outcomes.

20-25% of veterans with TBI and PTSD experienced:

- unemployment
- sleep disturbances
- lack of emotional support
- \*Although frequency and duration was not covered

Another study showed that among veterans with TBI - PTSD, poor sleep, and low resilience were risk factors that needed early clinical intervention.

# Anger Management

Anger is a core symptom of PTSD. However, simply reducing PTSD symptoms for most veterans is not enough to eliminate difficulties with anger management.

While anger can be adaptive in dangerous situations such as combat, veterans with both PTSD & TBI reported more frequent struggles with anger and many negative impacts of chronic dysregulated anger.

### These include:

- difficulties with violence
- relationship impairments
- unsuccessful reintegration into civilian life
- suicidality
- cardiovascular disease
- stroke
- chronic pain
- substance use, abuse, or dependence
- impaired sleep



# $\overline{\text{TBI}} + PTSD + Sleep$

Research indicated that veterans with PTSD and TBI and sleep disturbances consistently report poor neurobehavioral outcomes across a variety of areas.

These include anxiety, depression, anger, and more.

In addition to readjustment support, ongoing sleep disturbances were shown to have a great longterm impact on veterans with TBI and PTSD.

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# Sleeplessness & Veterans Deployed and active-duty service members are expected to function optimally in high-risk environments when maintaining a normative sleep schedule is often not possible Chronic insufficient sleep has been shows to reduce safety, suggesting that combat-exposed service members may be more susceptible to mission related injuries such as TBI

## **Combat & Sleep**

Service members report sleep disturbances including insufficient sleep, non-restorative sleep, insomnia, and nightmares) at very high rates before, during and after deployment.

More than 75% of deployed service members rated their quality of sleep as significantly worse than before deployment.

87% of service members reported at least 1 sleep disturbance with the most common being: insomnia, sleep fragmentation, obstructive sleep apnea, and hyperinsomnia.

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# Why is this so important?

We all have a biological need for sleep.

Sleep is foundational.

It replenishes us to that we can take on the challenges of tomorrow.

Restorative sleep contributes to good health.

Often in the military poor sleep habits have been formed and/or rewarded such as getting by on little sleep, feeling like one doesn't need sleep, to push when tired, or see sleeping as weak.

Unaddressed sleep disturbances can negatively impact the TBI rehabilitation process

# **Sleep Deprivation**

Lack of sleep can cause negative health consequences.

Also sleep deprivation can cause a person to experience disorientation, paranoia, and hallucinations.

Some of the most serious problems association with sleep deprivation include high blood pressure, diabetes, heart attack(s), heart failure, stroke, obesity, depression, reduced immune system function, and lower sex drive.



# **Problematic Sleep**

Some of the circumstances that contribute to long term sleep problems include:

- not addressing long term chronic pain
- medication side-effects
- being "kicked out" of the bedroom due to PTSD incident(s)
- shift work that changes
- overnight work schedule
- work related stress combined with sleep deprivation
- recovering from TBI





## Research

One prominent research study (Seal et. al., 20018) was in April 2007 where a TBI screening program for OEF/OIF veterans at the VA were asked to complete a Comprehensive Traumatic Brain Injury Evaluation (CTBIE), undergo an extensive clinical history, and a physical exam.

Nearly 75% of the veterans in the study reported pain disability.

The study recommended that clinicians consider concurrent diagnoses of TBI, PTSD, and depression when prescribing opiate pain medication, that can negatively impact cognitive functioning, come with a risk of overdose or even suicidal ideation. For example, if a veteran is experiencing depression from feeling isolation, but then pain medication leads to more sleeping during the day and less ability to drive safely, the medication could help pain but also increase depressive symptoms.

Cognitive behavioral therapies such as targeting maladaptive beliefs about pain, yoga, exercise, physical therapy, nutrition, and more were shown to decrease pain while also decreasing any co-occurring depression or PTSD and other comorbidities (as opposed to simply medication which often can increase it.)





## Remember

 $\bot$  Chronic pain is not always determined by the severity of the injury

 $_{\rm 2.}$  The amount of time that has passed since the injury does not always impact the amount of chronic pain one has

3. Everyone reacts to pain differently

4. Similarly, everyone reacts to interventions designed to reduce or eliminate chronic pain differently

 $_{\rm 5.}$  It is important to find out what works best for each person to help manage their chronic pain

5. Self-reporting to their doctor what works and what doesn't is key

 $\tau$ . Considering other factors, what works today may not be as good 3 months from now. So having a large "tool chest" of coping skills they can utilize and a willingness to try them is always best.

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# **TBI-Associated Grief**

Although within Americanized mainstream society we think of grief as a reaction to a physical loss (also known as bereavement), research indicates that grief is experienced significantly as a reaction to profound cognitive changes

This can sometimes be described as "ambiguous loss", meaning when someone is physically present but parts of them may be no longer psychologically present in the same way they once were

This type of loss can be particularly stressful because it lacks closure and there is no resolution to the grief

# Who Experiences Grief

Grief can be experienced as a bereavement-related reaction by someone who has a substantial cognitive change

Similarly, grief can be experienced as a bereavement-related reaction following a substantial cognitive change by caregivers as well. These include:

- Spouses & partners
- Children
- Grandchildren
- Platoon members
- Coworkers
- Parents
- Siblings
- ..... And more

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## Caregivers

We may think of caregivers as someone in your life who does EVERYTHING for you

This is a false assumption

There are many different ways people are caregivers in life

Some people have big care giving roles and some have small

People without TBIs also have caregivers in their life too

It is important to remember (especially in times of discord) that when caregivers experience their own grief process, that is THEIR grief process

Their reaction to grief is THEIR own. (Even though it may seem about you, it isn't really about YOU. It's their reaction!)

# Physical Grief

Multiple studies have linked grief with physical health problems

Grief has also been known to cause Depression

Depression & Grief are 2 separate things:

- Grief is an emotional response to a specific loss
- Depression is more related to poor self-esteem & feelings of worthlessness
- \* Both can exist together, but they are SEPARATE

Research has also shown that caregivers may develop physical health problems and/or Depression related to their grief

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# Gaps in Research

One thing that we don't really know in research is why some people adapt particularly well or quickly to grief while others don't

i.e. Why do some people "bounce back" from the loss of a parent while others may take years to mourn their deceased cat?

Why do some people return to work 2 days later, but 10 years later will become completely overwhelmed by grief?

Why are some people able to focus on themselves, while others may develop co-dependency and cause extreme stress to others?

# "Compounded" Grief

The grief process does not stop life from happening

Sometimes people may have multiple incidents of grief at the same time or during bereavement (i.e. someone may be recovering from a TBI and then experience the loss of a child)

There is also not enough research that indicates how compounded grief, i.e. more than one incident at the same time or back-to-back within a similar time frame impacts people and relationships

We also don't know enough yet about why people handle "compounded" grief so differently





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